Economists and Scarcity

BY STEVEN HORWITZ

In a world where concerns about the environment and resources dominate political discussion and, for people like Al Gore, are a "generational mission [that gives] moral purpose" to our lives, thinking clearly about these issues is crucial. Economics can contribute to this discussion by providing its perspective on words such as "scarcity" and "resources," which are often contested or misunderstood.

But how economists use those words is vulnerable to misunderstanding. For example, some environmentalists think that certain economists deny that scarcity even exists when they argue that we are not really running out of resources or that technology can solve any problem in this regard. The sorts of arguments criticized by the environmentalists are most closely connected with the work of the late Julian Simon, especially in his book *The Ultimate Resource 2*. However, the criticism reveals a misunderstanding of Simon's and other market-friendly economists' views.

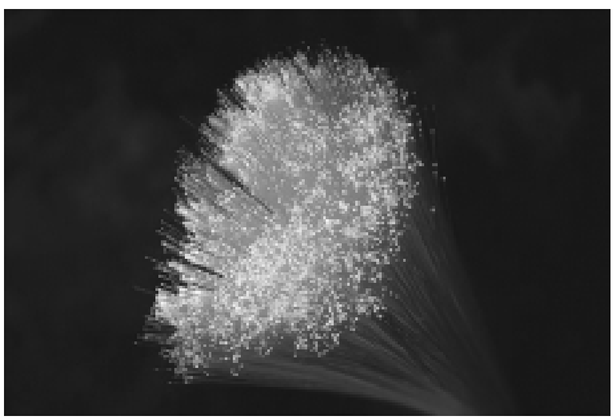

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Photo of fiber-optic cable. Laser Center, SUNY Stony Brook

It is certainly true that nonrenewable resources are limited in physical terms. From the perspective of the geologist, there is only "so much" oil to be extracted.

However, from the economist's perspective, what matters is not physical quantity, but how efficiently a resource meets a human need. We care about oil because we want energy. If through new technology we can create the same or more energy with less oil, then in an important sense we have more oil than we had before. The existing quantity of oil can now serve more human needs. Moreover, falling costs of extraction can also lead us to find previously undiscovered oil or to tap into known supplies that had been too costly to reach.

So advances in technology do indeed matter, not because they abolish scarcity but because they enable us to stretch the resources we have so that they are *functionally less scarce* than they were before.

When we speak of improvements in technology, we really mean new and more efficient ways to achieve the ends to which the old resources were a means. New technology might enable us to use an existing resource, such as oil, more efficiently, but it can also provide a new solution to the same problem. For decades, the human voice and data were transmitted by copper wires. Eventually, copper's price rose to where entrepreneurs had a strong incentive to find another way to provide the service. Eventually they developed sand-based fiber-optic cable, which can carry thousands of times the data for a fraction of the cost of copper. The development of the soft-sided beverage containers—juice boxes—is a similar story, and it is worth

Steven Horwitz (sghorwitz@stlawu.edu) is a professor of economics at St. Lawrence University.

noting that their lighter weight reduces gasoline use per unit.

When economists say, "We will never run out of resources," what they often mean is that faced with increasing scarcity of one resource, we will always find new solutions to the problem that that resource originally solved. In an important sense, the actual economic resource was not copper but "the ability to convey voice and data." And that resource has become "less scarce" by the substitution of sand. This illustrates Simon's point that the "ultimate resource" is the human ingenuity that finds new and better ways of using physical resources.

Although technology can fix things, it does not exist in a vacuum. Technological solutions emerge because the right economic institutions are in place. The market provides signals which inform people that a resource is growing more scarce and provide *incentives* to address the problem. Even some critics of environmentalist arguments forget this point. The role of institutions is clear where technology has not stopped resource depletion, such as overfishing, because the absence of private property and meaningful prices has created a "tragedy of the commons." The tragedy is that no one has an incentive to husband the resource. This is not a failure of technology but a lack of proper institutions. If the commons are privatized, incentives will exist to develop resource-conserving technologies.

The Central Concern of Economics

What's so absurd about the criticism of economists for not caring about resource scarcity is that the problem of scarcity—and how to handle it—are at the *center* of the discipline. The whole case for free markets is about allocating resources most efficiently to push back scarcity and communicating when a resource has become so scarce that we need to cut our use and find substitutes. That's what market prices determined through the exchange of private property do. This is also why many economists have concerns about the institutional changes advocated by many environmentalists. Limits on property ownership undermine the very processes that would solve many of the problems they identify.

Can it be *proven* that technology will always provide an alternative when a resource becomes too scarce? Not in any rationalistic sense. We can offer lots of arguments from theory and history, but we cannot guarantee it 100 percent. However, the evidence and theory overwhelmingly indicate that we do not run out of resources when market institutions are in place and people are more or less free. Certainly markets do not solve problems perfectly, but imperfections do not make alternative institutions better. They may well be worse.

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Scarcity is like gravity: it is omnipresent, and much of our lives is a struggle to find ways to overcome it. The existence of elevators and airplanes is not evidence that gravity is a myth. They are attempts to defy its very reality. Elevators improve our lives by giving us a way to push back at gravity and reduce the ways it frustrates our efforts.

Market institutions enable us to push back at scarcity as much as possible, much as elevators push back at gravity, and in so doing, make it considerably easier for individuals to achieve their myriad goals.

Some critics of the economic arguments for markets also suggest that economists dismiss scarcity whenever they claim that markets are positive-sum "games." It is true that economists understand that exchange creates wealth for all parties, while the critics seem to believe that any gains are offset by losses, even that the wealth of the few causes the poverty of the rest. At first glance, one can see why this criticism might be valid: how does exchange create wealth out of nowhere? Does that not seem to suggest we are not acknowledging scarcity?

Not at all. In the short run, exchange—whether a trade between two people or an act of production that trades inputs for outputs—makes people better off. This results not by creating more physical stuff but by rearranging what exists to make it more valuable to human beings. While we each think we're better off when we make an exchange, mutual benefit does not require a denial of scarcity; rather, exchange is one more way we push back against it.

This mutual benefit reinforces the point that value is a product of human minds, not of the objective physical world. In fact, we cannot even understand the concept "resource" without recognizing this point. For most of human history oil was a nuisance. People didn't want land with oil on it because it polluted the soil. However, once human minds realized that it could be converted to energy, it *became* a resource, and as we begin to create substitutes for it, as with copper wire, it will become less of a resource. From an economic perspective, what makes something a resource and what determines its scarcity is the interplay between its physical quantity and the human mind's perception that it can satisfy human wants.

In the longer run, the benefits of exchange, when combined with the institutions of the market, create the wealth that people can save in order to finance the investments that will lead to better and cheaper products for exchange. Real, tangible economic growth happens—not just for the wealthy, but for all. Again, we stretch the resources we *do* have even farther.

Theory aside, it would also be hard to deny that several centuries of more or less free markets have produced a tremendous rise in the living standards of the poorest people in the West. The same is beginning to happen elsewhere. To argue that the wealth of the wealthy is the cause of the poverty of the poor (the "some win at the expense of others" argument) flies in the face of historical facts.

Poverty and early death have been the norm throughout history. The power of private property, free exchange, and markets to change that norm has been the single most progressive force in human history. Scarcity is all too real and causes all too much human suffering, which is why we need genuine market institutions to continue to reduce its effects, especially on those who suffer most.